

AMENDED CLAIMS

[Received by the International Bureau on 11 January 2005 (11.01.2005) ;
original claims 1 – 10, replaced by amended claims 1 – 5]

1. Apparatus for the illumination of the vestibular/lingual cavity, comprising a symmetrical couple of retractors (A,B) for the oral cavity, each retractor having a series of punctiform light sources distributed thereon and deriving each from a corresponding termination of an optical fibre on the external surface of the retractor,
- 5 the apparatus producing a complete, uniform and close illumination from the inside of the mouth, both from the lingual side and from the vestibular side of each tooth; said couple of retractors being located on a support structure (7, 7', 7'') arranged on an U-like configuration, and said structure (7, 7', 7'') providing at the same time an inlet, through its lower termination, of optical fibres that branch off on the first (A)
- 10 and second (B) retractor; the apparatus comprising also regulation means for the adaptation of the normal or initial opening of the retractor through the introduction in said support structure (7, 7', 7'') of a semirigid small-bow, the latter being selected from an available set according to the typology of oral cavity on which the operation is to be performed and according to the kind of operation; said optical fibres which
- 15 end on the surface (6') of the retractor having differing tilts, said fibres being however arranged equidistantly, both from the inside to the outside and from top to bottom, taking account of the visualisation requirement of the operation field both in the closed and in the opened condition of the set of teeth;
- the apparatus being characterised in that three zones are selected for the arrangement 20 of the punctiform light sources on the surface (6') of the retractors:
 - a first series (3) of outgoing optical fibres being arranged in the projecting and more external part of the retractor, almost at the limit of the edge of the channel (1), to effectively illuminate, in the first place, from this position, the bottom of the lingual/vestibular cavity and in particular the molar teeth;
 - 25 - a further series of outgoing optical fibres corresponding to points (4) located in an intermediate zone of the inner plane of the retractor, said points being suited to

illuminate the premolars, and

- a further series of light points, or punctiform light sources (5), being arranged approximately at the inner surface of the projecting structure of the retractor, in order to illuminate the incisive teeth and the median lines.

5

2. Apparatus for the illumination of the vestibular/lingual cavity, comprising a symmetrical couple of retractors (A,B) for the oral cavity, each retractor having a series of punctiform light sources distributed thereon and deriving each from a corresponding termination of an optical fibre on the external surface of the retractor,

10 the apparatus producing a complete, uniform and close illumination from the inside of the mouth, both from the lingual side and from the vestibular side of each tooth; said couple of retractors being located on a support structure (7, 7', 7'') arranged on an U-like configuration, and said structure (7, 7', 7'') providing at the same time an inlet, through its lower termination, of optical fibres that branch off on the first (A) 15 and second (B) retractor; the apparatus comprising also regulation means for the adaptation of the normal or initial opening of the retractor through the introduction in said support structure (7, 7', 7'') of a semirigid small-bow, the latter being selected from an available set according to the typology of oral cavity on which the operation is to be performed and according to the kind of operation; characterised in that a set 20 of small bows (11) is available to the apparatus, each of them being suited to a corresponding type of oral cavity, and to a respective small-size, medium-size, or large-size opening of the mouth on which the operation is to be carried out.

3. Apparatus for the illumination of the vestibular/lingual cavity according to claim 25 2, wherein some of the available small bows have not the same length and/or do not cause the same opening-out on the two opposite sides thereof, and are employed in operations requiring, in order to open out the oral cavity, a specific asymmetric bias on only one side of the patient's mouth.

4. Use of the apparatus for the illumination of the vestibular/lingual cavity according to claim 1, wherein the apparatus is used as an endoscopic lamp to optimise the visualisation of inter-proximal caries and to permit the examination of the tooth
 - 5 through the transmitted light, when it is positioned behind the tooth in order to diagnose micro-fractures of the tooth or implants contained therein.
-
5. Use of the apparatus for the illumination of the vestibular/lingual cavity according to claim 1, wherein the apparatus is used as a polymerising, that is as a curing lamp,
 - 10 having a diode which emits cold light to cause hardening of composites, the apparatus being provided with a stopwatch specific for the regulation of the composites' hardening.